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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,634	06/26/2006	Akira Ikeda	1019519-000532	5588

21839 7590 04/08/2009

BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER	
RAMIREZ, ARMANDO P	
ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
04/08/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/584,634	IKEDA ET AL.	
	Examiner	Art Unit	
	ARMANDO P. RAMIREZ	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *14-58* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 13* is/are rejected.

7)☒ Claim(s) *11 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/26/2006,11/24/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. **Claims 14-58 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 01/12/2009.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. **The abstract of the disclosure is objected** to because in line 6 "includs" should read -includes-.

Correction is required. See MPEP § 608.01(b).

4. **The disclosure is objected** to because of the following informalities: On Page 1, line 22, "efficientantireflection," should not be one word. On Page 3, line 4, "the" should read -then-.

Appropriate correction is required.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

6. The use of the trademarks DPHA, UMS-182, and MEGAFACK F-179A (and additional examples listed in the specification) have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

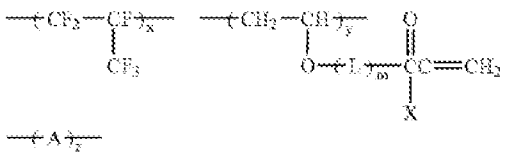
Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

7. **Claim 10 is objected to** because of the following informalities:

With respect to Claim 10, the compound described by Formula (1) contains a pentavalent carbon atom, in which X is attached to the carbonyl group. Hence, this structure is incorrect because it violates the octet-rule and should be modified to depict the correct representation.

Formula (1):



With respect to Claim 10, the "m" value is not defined for the L character between the carbonyl atom and the oxygen atom.

8. Appropriate correction, without the incorporation of new matter is required.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 6-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3 and 9-10 of copending Application No. **11/444,330**. Although the conflicting claims are not identical, they are not patentably distinct from each other because the invention of the instant claims (6-10) represents a genus of which

the invention described by claims 3 and 9-10 of copending Application No. 11/444,330 are a species. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). Since the instant claims 6-10 are written with open language, they are generic to and encompass embodiments wherein the compound further comprises a fluorinated photopolymerization initiator and an ionizing radiation-curing compound (the acryl moeity), in addition to the silicone moiety represented by "A" as recited in claim 10 of copending Application No. 11/444,330.

At the time of the invention it would have been obvious to one of ordinary skill in the art to have employed a fluorinated photopolymerization initiator in order to cure the acryl-based polymer as claimed and maintain the hydrophobic properties of the film by including fluorine atoms within the molecular structure of the initiator. Furthermore, it would have been obvious to cure the compound in order to add strength and rigidity to the film.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

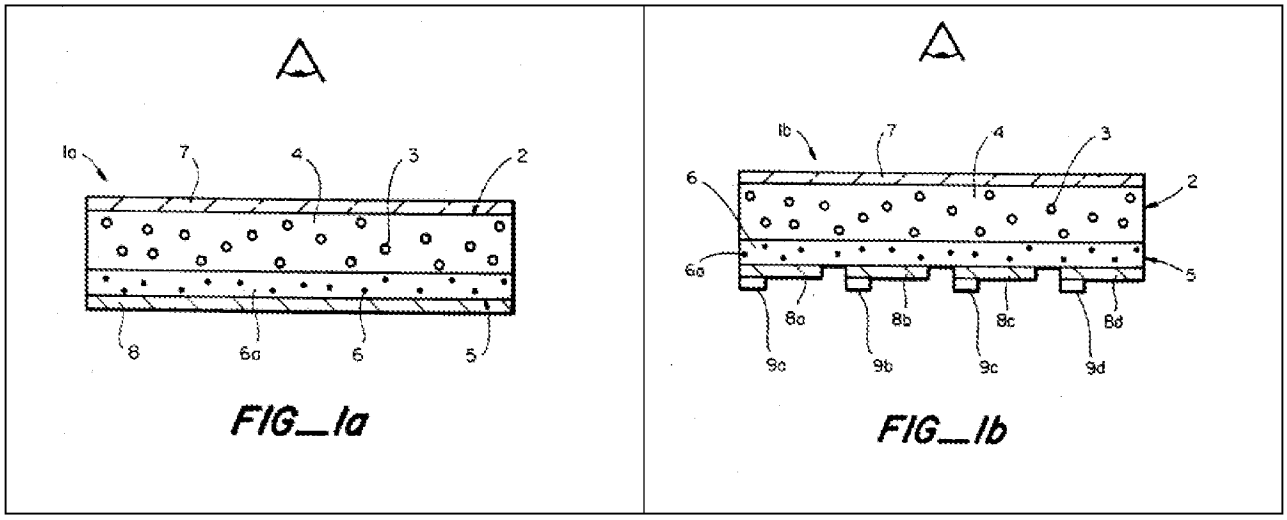
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (US 5,138,472).

Jones teaches with respect to Claims 1 and 6, the claimed antireflection film (*see at least Figure 1a, items 6 and 6a, Col. 4 line 63 through Col. 5, line 14*) comprising: the claimed transparent support (*Figure 1a, item 8 and item 2*); the claimed low-refractive index layer having a lower refractive index than the transparent support (*ITO, [refractive index of 1.95, Pionteck, Jürgen see attached reference] item 8, considered to have a higher refractive index than the scattering layer, Figure 1a, 6a, which can be made out of glass [1.5], vide infra*), wherein the low-refractive index layer is an outermost layer of the antireflection film (*see Figures 1a and 1b, Col. 5, 15-20*), and the low-refractive index layer comprises: the claimed hollow silica particle (*hollow spheres of glass, considered to be made of silica [SiO2], see at least, Col. 4, lines 22-25*); and the claimed compound lowering a surface free energy of the antireflection film (*polyester, considered to be the compound that lowers the surface free energy of the antireflection film, Col. 7, line 17*).

With respect to Claim 6, Jones teaches the claimed binder capable of lowering a surface free energy of the antireflection film (*polyester, considered to be the compound that lowers the surface free energy of the antireflection film, Col. 7, line 17, also see Col. 5, line 1*).

Jones (Prior Art):	Jones (Prior Art):



Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobuyasu (machine translation of JP, 2000-313709, A) in view of Jones (US 5,138,472).

Nobuyasu teaches with respect to Claims 1, and 6, the claimed antireflection film (*0001*) comprising: a transparent support (*on a substrate, 0001, and 0057*); the claimed low-refractive index layer (*0001, 0007*) having the claimed lower refractive index than the transparent support (*0065*), wherein the low-refractive index layer is an outermost layer of the

antireflection film (*Figure "14", item 10, 0066*), and the claimed a compound lowering a surface free energy of the antireflection film (*see at least 0009*).

Nobuyasu, however, does not specifically teach the claimed hollow silica particle. Jones however, teaches the claimed hollow silica particle (*hollow spheres of glass, considered to be made of silica [SiO_2], see at least, Col. 4, lines 22-25*).

Nobuyasu and Jones are analogous art because they are from the same field of endeavor, such as optical films. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Nobuyasu and Jones before him or her, to modify the film of Nobuyasu in order to contain the hollow silica particles as taught by Jones.

The motivation for doing so would be to optimize the film as described by Jones: "This invention provides several advantages. The brightness is improved over a wider range of viewing angles than with a specular mirror which is only bright when the eye sees the images of the light sources in the room. Glare from the light sources is reduced, making display appearance (contrast, brightness, etc.) less dependent on the exact viewing angles and placement of the light sources in the room." (*Col. 6, lines 44-51*). Therefore, it would have been obvious to combine Nobuyasu and Jones to obtain the invention as specified in the instant claims.

With respect to the claimed binder capable of lowering a surface free energy of the antireflection film ("*hardenability resin which has at least one fluorine atom," see at least 0009, is considered to be a compound lowering a surface free energy as described by the specification of the instant application, 0272*).

With respect to Claim 2, Nobuyasu teaches the claimed antireflection film, wherein the compound is at least one selected from the group consisting of a silicone compound, a fluorine-containing compound and a fluoroalkylsilicone compound (*Formula 1, see at least 0026-0028*).

With respect to Claim 3, Nobuyasu teaches the claimed antireflection film, wherein the compound is the silicone compound (*polysiloxane, considered to be the silicone compound, see at least 0030)*.

With respect to Claim 4, Nobuyasu teaches the claimed antireflection film, wherein the low-refractive index layer comprises a binder, and the compound comprises a reactive group with the binder (*dimethylsiloxane, see at least 0026-0028 and additional examples therein*).

Nobuyasu states that, "For example, if poly dimethylsiloxane uses the azo content polysiloxane compound connected by azo, the block copolymer of a hexafluoropropylene copolymer and polydimethylsiloxane can be obtained." (*0026*). Therefore, the dimethylsiloxane compound depicted in Formula 1, contains the claimed reactive group with the binder, i.e. the azo moeity depicted in Formula 1 (*0028*), or as Nobuyasu teaches, "in order to introduce a siloxane bond easily in a hexafluoropropylene copolymer, the azo content polysiloxane compound is used by a 1st embodiment." (0026).

With respect to Claims 5, and 9, Nobuyasu teaches the invention set forth above but does not specifically teach the claimed antireflection film, wherein the compound comprises a (meth)acryloyl group.

Nobuyasu, however, teaches a fluoroacrylate as depicted in Formula 3 (*0041*). The fluoroacrylate is a type of acryloyl group, however, the claimed methyl is not specifically taught by Nobuyasu.

With respect to the claimed (meth)acryloyl group. The similarity between the chemical structures and properties between the prior art and those of the instant claim are sufficiently close in the analogous series of compounds that one of ordinary skill in the art would have been motivated to make the analogous series; (meth)acryloyl, and hence the subset, where instead of installing the hydrophobic α-fluoro group as taught by Nobuyasu (*0041*) the hydrophobic methyl moeity is installed.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to have tuned the substituents of the acryloyl core structure (Formula 1) in order to obtain the desired surface protective properties. For example, increasing the hydrophobic moieties in order to increase surface contact angle of the film and thereby also reduce the surface free energy of the film, ultimately leading to changes in the durability, i.e. water repellence and oil repellence.

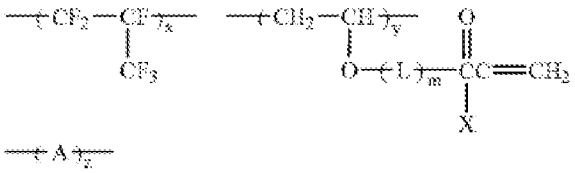
"A prima facie case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties." *In re Payne*, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979). MPEP 2144.09.

With respect to Claim 7, Nobuyasu teaches the claimed antireflection film, wherein the binder comprises at least one of a silicone and a fluorine (*Formula 1, and hexafluoropropylene block copolymer, considered to contain at least one of silicone and fluorine, 0026-0028*).

With respect to Claim 8, Nobuyasu teaches the claimed antireflection film, wherein the binder is a fluorine-containing polymer (*hexafluoropropylene, 0026, also see Formula 3, 00-40-*

0041, and additional examples therein). Both monomers upon polymerization are converted to polymers.

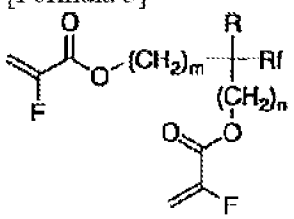
With respect to Claim 10, Nobuyasu teaches the claimed antireflection, wherein the binder is a compound represented by formula (1):



wherein L represents a linking group having from 1 to 10 carbon atoms; X represents a hydrogen atom or a methyl group; A represents a repetitive unit derived from a vinyl monomer; x, y and z each indicates mol % of the respective repetitive unit, and satisfy $30 \leq x \leq 60$, $5 \leq y \leq 70$ and $0 \leq z \leq 65$. (*see at least 0041-0043, also hexafluoropropylene copolymer, 0043, and 0012*).

Nobuyasu (Prior Art):

[Formula 3]



(5)

[0042]An integer (however, it does not become in 0 simultaneously.) to 0-10 and R of m and n are hydrogen or an alkyl group to the carbon numbers 1-10, and the contents as a general formula (1) with same R_f

With respect to the claimed L represents a linking group having from 1 to 10 carbon atoms (*m and n are 0-10, considered to be linking groups, 0042*); X represents a hydrogen atom

or a methyl group (*vide supra, claim objection and claim rejections of Claims 5 and 9*); A represents a repetitive unit derived from a vinyl monomer (*z is 0 mol % as claimed by the applicant in the instant claim, therefore, Nobuyasu teaches z is 0*); x, y and z each indicates mol % of the respective repetitive unit, and satisfy $30 \leq x \leq 60$, $5 \leq y \leq 70$ (*see at least 0012 and 21*) and $0 \leq z \leq 65$.

The mol % ranges as claimed by the applicant in the instant claim overlaps the mol % ranges as taught by Nobuyasu.

With respect to the claimed compound represented in Formula 1, Nobuyasu teaches that "m" and "n" are 0-10, therefore, when either "m" or "n" are zero, Formula 3 (*Nobuyasu, Prior Art, vide supra*), and when z is zero (as claimed by the applicant) the claimed compound reads on Formula 3 in combination with hexafluoropropylene as taught by Nobuyasu (*0041-0043*).

With respect to Claim 13, Nobuyasu teaches the invention set forth above, but does not specifically teach the claimed antireflection film, which comprises a layer comprising at least one of a hydrolysate of an organosilane and a partial condensate of the organosilane, wherein the hydrolysate and the partial condensate is produced in the presence of at least one of an acid catalyst and a metal chelate compound, and the organosilane is represented by formula (A):

$$(R^{10})_m Si(X)_{4-m}$$

wherein R^{10} represents a substituted or unsubstituted alkyl group, or a substituted or unsubstituted aryl group; X represents a hydroxyl group or a hydrolyzable group; and m indicates an integer of 1 to 3.

Nobuyasu, however, teaches silane coupling agents (*0049 see additional examples therein*), and specifically teaches gamma-aminopropyltriethoxysilane. Therefore, Nobuyasu teaches the claimed R^{10} is "a substituted alkyl group", X is a "hydrolyzable group," and m is 1, gamma-aminopropyltriethoxysilane. Ethoxy groups are considered to be hydrolysable by those of ordinary skill in the art.

With respect to the claimed comprising at least one of a hydrolysate of an organosilane and a partial condensate of the organosilane, wherein the hydrolysate and the partial condensate is produced in the presence of at least one of an acid catalyst and a metal chelate compound. Nobuyasu teaches that, "The obtained polymer solution was thrown into methanol, polymer was deposited, methanol washed, and the hexafluoropropylene copolymer (polymer A1) which performs vacuum drying at 50 more **, and includes a 129-g siloxane bond was obtained." (*0072*). Hence, the mere act of methanol washing the polymer solution will cause the claimed organosilane to undergo partial condensation. Therefore, the reference teaches the claimed condensation, however, absent the teaching of acid catalysis or a metal chelate.

Although, the reference does not teach the precise method of obtaining the condensation product, such as the claimed acid catalyst, at the time of the invention it would have been obvious to catalyze the hydrolysis and/or condensation of the organosilane compound with an acid in order to promote the formation of covalent bonds between the antireflection film components and the organosilane compound, thereby tuning the adherence and durability of the film.

Allowable Subject Matter

14. **Claims 11 and 12 objected to** as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO P. RAMIREZ whose telephone number is (571)270-7083. The examiner can normally be reached on Mon - Thur (4/5/9).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

/A. P. R./